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Measuring TeV Gamma-Ray Diffuse Emission from the Galactic Plane with Milagro

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Abstract content

Diffuse gamma radiation produced in the interaction of cosmic-ray particles with matter and radiation in the Galaxy can be used for probing the origin of cosmic rays. The large field of view and long observation time of the Milagro Gamma-Ray Observatory– a water Cherenkov detector that operates continuously, detecting extensive air showers from the overhead sky – is an ideal instrument for surveying large regions of the Northern Hemisphere sky and for detecting diffuse gamma ray emission at the highest energies. In my presentation, I will discuss the diffuse emission from the galaxy as visible from the Northern Hemisphere. In this region, the experiment has previously observed seven sources or source candidates respectively at a median energy of 12 TeV with a pre-trials significance of > 4.5 standard deviations. The fluxes of these locations have been measured and can be subtracted from the total flux measured in the Galactic Plane region to estimate the amount of diffuse emission. We will report the resulting diffuse emission and compare it to predictions of the GALPROP program, which calculates the expected gamma-ray emissivity due to cosmic-ray interactions with matter.

If this papers is presented for a collaboration, please specify the collaboration

Milagro

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 2 (OG part 1), pages 509-512

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